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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/712,613

Applicant(s)

ABE ET AL.

Examiner

Philip J. Sobutka

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 25-57 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 48 and 49 is/are allowed.
- 6) ☒ Claim(s) 1,2,25-27,32-47 and 50-57 is/are rejected.
- 7) ☒ Claim(s) 28-31 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/335,315.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/13/2003</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

3. Claim 2 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other

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because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

4. Claim 25 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because the differences are primarily grammatical.

5. Claim 26 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because the differences are primarily grammatical.

6. Claim 27 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claim lacks use of CDMA, however official Notice is taken that use of CDMA is notoriously well known. Therefore it would have been obvious to one of ordinary skill in the art to modify claim 1 to use CDMA in order to utilize an interference resistant modulation scheme.

7. Claim 32 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claim lacks the non overlapping puncturing patterns, however it

would have been obvious to one of ordinary skill in the art to modify claim 1 as shown in the instant claim in order to increase effectiveness of the puncturing.

8. Claim 33 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claim lacks the non overlapping puncturing patterns, however it would have been obvious to one of ordinary skill in the art to modify claim 1 as shown in the instant claim in order to increase effectiveness of the puncturing.

9. Claim 34 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claim lacks the non overlapping puncturing patterns, however it would have been obvious to one of ordinary skill in the art to modify claim 1 as shown in the instant claim in order to increase effectiveness of the puncturing.

10. Claim 35 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claim lacks the non overlapping puncturing patterns, however it would have been obvious to one of ordinary skill in the art to modify claim 1 as shown in the instant claim in order to increase effectiveness of the puncturing.

11. Claim 36 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although

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the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

12. Claim 37 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

13. Claim 38 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

14. Claim 39 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

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15. Claim 40 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

16. Claim 41 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claim lacks the non overlapping frequencies, however it would have been obvious to one of ordinary skill in the art to modify claim 1 as shown in the instant claim in order to increase effectiveness of the diversity.

17. Claim 42 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claim lacks the non overlapping frequencies, however it would have been obvious to one of ordinary skill in the art to modify claim 1 as shown in the instant claim in order to increase effectiveness of the diversity.

18. Claim 43 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would

have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

19. Claim 44 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

20. Claim 45 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

21. Claim 46 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

22. Claim 47 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although

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the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

23. Claim 50 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement, as well as to construct a transmitter to perform the transmission portion..

24. Claim 51 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement, as well as to construct a transmitter to perform the transmission portion.

25. Claim 52 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other

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because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement, as well as to construct a transmitter to perform the transmission portion.

26. Claim 53 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement, as well as to construct a receiver to perform the reception portion.

27. Claim 54 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement, as well as to construct a receiver to perform the reception portion.

28. Claim 55 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would

have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

29. Claim 56 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

30. Claim 57 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,693,889. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patented claim uses diversity transmission and reception, it would have been obvious to one of ordinary skill in the art that eliminating the diversity would simplify the arrangement.

Allowable Subject Matter

31. Claims 48 and 49 are allowed.

Consider claim 48. The nearest prior art as shown in Yi fails to teach a transmission and reception system comprising a transmission earth station, a receiving earth station, and a plurality of satellite repeater stations, wherein communication is made from the transmission earth station to the receiving earth station via the plurality of satellite repeater stations, the transmission earth station being provided with an earth

station transmission device comprising: (1) convolutional coding means for outputting input data by convolution-coding the data; (2) first multiple puncturing pattern generation means for generating puncturing patterns having an identical puncturing rate, but having respectively different puncturing block patterns, the first multiple puncturing pattern generation means providing a reference matrix from which are generated the puncturing patterns; (3) puncturing means for puncturing convolution-coded data output by the convolutional coding means by using each of the puncturing patterns supplied by the first multiple puncturing pattern generation means, and outputting punctured data; and (4) earth station modulation / transmission means for transmitting each of the punctured data output by the puncturing means to the plurality of satellite repeater stations, one series of data after another, and the receiving earth station being provided with an earth station reception device comprising: (1) earth station reception / demodulation means for receiving individual signals transmitted from the transmission earth station via the plurality of satellite repeater stations, and outputting demodulated data; (2) second multiple puncturing pattern generation means for generating puncturing patterns, which are identical to the puncturing patterns of the first multiple puncturing pattern generation means; (3) depuncturing means for depuncturing each of the demodulated data output from the earth station reception / demodulation means by using each of the puncturing patterns supplied by the second multiple puncturing pattern generation means, and outputting the depunctured data; (4) combining means for combining the depunctured data output by the depuncturing means, symbol by symbol in a unit of a block, and outputting a result of combining; and (5) convolutional decoding means for convolution-

decoding the result of combining output by the combining means, and outputting a decoded data, wherein the transmission and reception system punctured-convolution-codes identical series of information data with different forms of puncturing patterns, and executes path-diversity transmission and reception of an obtained plurality of different series of error-correction code words, as individual diversity branch data via the plurality of satellite repeater stations, and the first multiple puncturing pattern generation means comprises a first reference matrix generation means for generating a reference matrix for one of the puncturing patterns, and a first matrix conversion means for outputting a different puncturing pattern for each one of a plural form by converting at least one of rows, columns and elements of the reference matrix.

Consider claim 49. The nearest prior art as shown in Yi fails to teach a transmission and reception system comprising a plurality of earth stations and a plurality of satellite repeater stations, wherein the plurality of earth stations communicate with one another via the plurality of satellite repeater stations, and each of the plurality of earth stations comprises: an earth station transmission device comprising: (2) convolutional coding means for outputting input data by convolution-coding the data; (2) first multiple puncturing pattern generation means for generating puncturing patterns having an identical puncturing rate, but having respectively different puncturing block patterns, the first multiple puncturing pattern generation means providing a reference matrix from which are generated the puncturing patterns; (3) puncturing means for puncturing convolution-coded data output by the convolutional coding means by using each of the puncturing patterns supplied by the first multiple puncturing pattern

generation means, and outputting punctured data; and (4) earth station modulation / transmission means for transmitting each of the punctured data output by the puncturing means to the plurality of satellite repeater stations, one series of data after another, and an earth station reception device comprising: (1) earth station reception / demodulation means for receiving individual signals transmitted from the transmission earth station via the plurality of satellite repeater stations, and outputting of demodulated data; (2) second multiple puncturing pattern generation means for generating puncturing patterns, which are identical to the puncturing patterns of the first multiple puncturing pattern generation means; (3) depuncturing means for depuncturing each of the demodulated data output from the earth station reception / demodulation means by using each of the puncturing patterns supplied by the second multiple puncturing pattern generation means, and outputting the depunctured data; (4) combining means for combining the depunctured data output by the depuncturing means, symbol by symbol in a unit of a block, and outputting a result of combining; and (5) convolutional decoding means for convolution-decoding the result of combining output by the combining means, and outputting a decoded data, wherein the transmission and reception system punctured-convolution-codes identical series of information data with different forms of puncturing patterns, and executes path-diversity transmission and reception of an obtained plurality of different series of error- correction code words, as individual diversity branch data via the plurality of satellite repeater stations, and the first multiple puncturing pattern generation means comprises a first reference matrix generation means for generating a reference matrix for one of the puncturing patterns,

and a first matrix conversion means for outputting a different puncturing pattern for each one of a plural form by converting at least one of rows, columns and elements of the reference matrix.

32. Claims 28-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Consider claim 28. The nearest prior art as shown in Yi fails to teach the transmission and reception system according to claim 2, wherein: (2) said demodulated data output by said reception / demodulation means are digital values quantized with a predetermined number of bits; (2) said depuncturing carried out by said first depuncturing means includes inserting a middle value between two digital values corresponding to a mark and a space; (3) said combining by said first combining means is a process of addition of a digital value to said series of depunctured data output by said first depuncturing means, symbol by symbol in a unit of a block; and (4) said first convolutional decoding means defines Viterbi soft quantization means for executing a Viterbi soft decision.

Consider claim 29. The nearest prior art as shown in Yi fails to teach the transmission and reception system according to claim 25, wherein: (2) said demodulated data output by said reception / demodulation means are digital values quantized with a predetermined number of bits; (2) said depuncturing carried out by said first depuncturing means includes inserting a middle value between two digital values corresponding to a mark and a space; (3) said combining by said first combining means

is a process of addition of a digital value to said series of depunctured data output by said first depuncturing means, symbol by symbol in a unit of a block; and (4) said first convolutional decoding means defines Viterbi soft quantization means for executing a Viterbi soft decision.

Consider claim 30. The nearest prior art as shown in Yi fails to teach the transmission and reception system according to claim 26, wherein: (2) said demodulated data output by said reception / demodulation means are digital values quantized with a predetermined number of bits; (2) said depuncturing carried out by said first depuncturing means includes inserting a middle value between two digital values corresponding to a mark and a space; (3) said combining by said first combining means is a process of addition of a digital value to said series of depunctured data output by said first depuncturing means, symbol by symbol in a unit of a block; and (4) said first convolutional decoding means defines Viterbi soft quantization means for executing a Viterbi soft decision.

Consider claim 31. The nearest prior art as shown in Yi fails to teach the transmission and reception system according to claim 27, wherein: (1) said demodulated data output by said reception / demodulation means are digital values quantized with a predetermined number of bits; (2) said depuncturing carried out by said first depuncturing means includes inserting a middle value between two digital values corresponding to a mark and a space; (3) said combining by said first combining means is a process of addition of a digital value to said series of depunctured data output by said first depuncturing means, symbol by symbol in a unit of a block; and (4) said first

convolutional decoding means defines Viterbi soft quantization means for executing a Viterbi soft decision.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip J Sobutka whose telephone number is 571-272-7887. The examiner can normally be reached Monday through Friday from 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on 571-272-4711.

34. The central fax phone number for the Office is 571-273-8300.

Most facsimile-transmitted patent application related correspondence is required to be sent to the Central FAX Number.

CENTRALIZED DELIVERY POLICY: For patent related correspondence, hand carry deliveries must be made to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the Central FAX number, unless an exception applies. For example, if the examiner has rejected claims in a regular U.S. patent application, and the reply to the examiner's Office action is desired to be transmitted by facsimile rather than mailed, the reply must be sent to the Central FAX Number.

35. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



PHILIP J. SOBUTKA
PATENT EXAMINER

9/17/07

Philip J Sobutka

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